ACCESSION #: 9607300379

LICENSEE EVENT REPORT (LER)

FACILITY NAME: LaSalle County Station Unit One PAGE: 1 OF 5

DOCKET NUMBER: 05000373

TITLE: Unit 1 Reactor Scram on Main Steam Flow High Trip

Isolation during Surveillance

EVENT DATE: 06/26/96 LER #: 96-007-00 REPORT DATE: 07/24/96

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 100%

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:

50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:

NAME: William Kirchhoff, Site Engineering TELEPHONE: (815) 357-6761

Extension 2927

COMPONENT FAILURE DESCRIPTION:

CAUSE: SYSTEM: COMPONENT: MANUFACTURER:

REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

At 20:56 hours on June 26, 1996, a full Main Steam Isolation Valve (MSIV) isolation was received on Unit 1 during the Instrument Maintenance Department (IMD) instrument mechanics (IM's) performance of a surveillance for calibrating the Main Steamline High Flow Isolation switches. The MSIV isolation trip resulted in an automatic Reactor Scram of Unit 1 due to the Reactor Protection System (RPS) trip signal from the MSIV not full open trip logic. All Safety systems functioned as expected and the reactor safely shut down.

A Primary Containment Isolation System (PCIS) Group 1 half isolation trip on the A2 channel was in place due to the calibration of the 1B21-N010C switch and had not been reset. The IM had just completed actions for prepressurizing the high flow differential pressure switch to near reactor pressure, and was in the process of throttling open the flow switch high side isolation valve when a trip was received from the PCIS Group 1 channel B2 for main steam flow high trip. The A2 instrument and B2 instrument lines are shared. The combination of the A2 channel and B2 Channel trips resulted in the full PCIS Group 1 isolation of the MSIVs.

The root cause of the event was an Instrument Maintenance Department work practice deficiency in the proper technique for prepressurizing instruments. A contributing factor was a procedural weakness. The procedure did not include steps to reset the main steam high flow isolation trip channel prior to returning the instrument to service. This action would have reduced the probability of receiving a full PCIS Group 1 isolation from a pressure spike induced while valving in the instrument.

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PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor

Energy Industry Identification System (EIIS) codes are identified in

the text as [XX].

A. CONDITION PRIOR TO EVENT

Unit(s): One Event Date: 06/26/96 Event Time: 20:56 Hours

Reactor Mode(s): 1 Mode(s) Name: Run Power Level(s): 100%

B. DESCRIPTION OF EVENT

At 20:56 hours on June 26, 1996, the Instrument Maintenance

Department (IMD) was performing Instrument Surveillance LIS-MS-102,"

Unit 1 Main Steam Line (MSL) High Flow MSIV Isolation Calibration."

Ten of the sixteen Main Steam Isolation Valve (MSIV,MS) [SB] high

flow differential pressure switches had already been successfully

calibrated and returned to service. The calibration of the 1B21-N010C flow switch had just been completed and the instrument mechanics were in the process of returning the switch to service.

There are four instrument racks, and each instrument rack contains one Primary Containment Isolation System (PCIS, PC) [NH] subchannel. Each PCIS subchannel consists of four flow switches; one from each main steam line. These subchannels are A1 (A switches), B1 (B switches), A2 (C switches) and B2 (D switches). The switches are configured in a one-out-of-two twice logic. To trip a PCIS subchannel from the high flow switches, at least one switch in a channel must trip on high flow. To receive a Group 1 isolation, one of the A or C channels must trip along with one of the B or D channels.

A Primary Containment Isolation System (PCIS) Group 1 half isolation trip on the A2 channel was in place during the calibration of the 1B21-N010C switch and had not been reset. An Instrument Mechanic had just completed actions for prepressurizing the hi flow differential pressure switch to near reactor pressure, and was in the process of throttling open the flow switch high side isolation valve when a trip was received from the PCIS Group I channel B2 for Main steam flow hi trip. The combination of the A2 channel and B2 Channel trips resulted in the full PCIS Group 1 isolation of the MSIVs. The MSIV isolation trip resulted in an automatic Reactor

Scram of Unit 1. All control rods fully inserted and operations established control of Reactor Vessel water level and pressure using the Motor Driven Feed Pump (MDRFP) and Safety Relief Valves (SRVs). Both loops of suppression pool cooling were started to remove the added heat to the suppression pool from the SRVs and the Reactor Core Isolation System (RCIC) was manually started to assist in pressure control of the reactor vessel.

This event is being reported in accordance with the requirements of 10 CFR 50.73(a)(2)(iv) due to an automatic actuation of an Engineered Safety Feature (ESF).

C. CAUSE OF EVENT

The cause of the Scram was a Group 1 Isolation signal initiated by the spurious trip of Main Steam Line (MSL) High Flow switch 1B21-N010D caused by a pressure spike on the instrument sensing line during the return to service of the 1B21-N010C switch. The instrument sensing lines of the 1B21-N010C switch (PCIS Group 1 A2 channel) are shared with the 1B21-N010D switch (PCIS Group 1 B2 channel) and with a Feedwater-Reactor level control system main steam line flow transmitter (1C34-N004C). The pressure spike occurred because the main steam high flow switch did not get properly prepressurized prior to returning the instrument to service. The PCIS Group 1 Isolation trip of the A2 channel had not

been reset and the subsequent B2 Channel trip of the PCIS Group 1 logic resulted in a full Group 1 isolation.

The manifold and vent valves of the main steam hi flow switch, 1B21-N010C, which was being returned to service were subsequently replaced and tested. It was suspected that one of the valves may have been leaking or sticking in a manner to result in an abrupt valve position change. It was determined by testing the manifold and vent valves as they responded to maintaining pressure, that none of the valve seats were leaking. However, the hi side vent valve required a greater amount of rotation than normal before valve seat contact was broken as evidenced by dropping of pressure being held. The high side vent had been the valve used by the IM to prepressurize the flow switch.

During the prepressurization of the flow switch, the IM throttled the high side vent valve. This was done in order to minimize the effect on the final switch pressure from the closure of the vent valve which causes further pressurization of the switch due to the relative incompressibility of the water. Because the valve was being throttled near the fully closed position, the valve was not open off its seat. As a result, the IM was not actually pressurizing the instrument volume, but only the gage which was attached upstream of the high side vent. This method of prepressurizing instruments was verified to be used by other

Instrument Mechanics. The root cause is a work practice deficiency in the proper technique for prepressurizing instruments.

A contributing factor was a procedural weakness. The procedure did not include steps to reset the main steam high flow isolation trip channel prior to returning the instrument to service. This action would have reduced the probability of receiving a full PCIS Group 1 isolation from a pressure spike induced while valving in the instrument.

LIS-MS-102, Unit 1 Main Steam Line High Flow MSIV Isolation Calibration, instructs the IM to have the Operator reset the PCIS isolation trip logic after the switch being tested has been valved back in to service. It is however possible to reset the isolation logic prior to valving the instrument into service because the flow switch is reset with the manifold equalization valve open. Had the isolation trip been reset prior to instrument being valved back in service, it is possible that only a B2 channel trip would have occurred as a result of the spike from the 1B21-N010D switch. The 1B21-N010C switch may not have tripped causing a channel A2 trip, because the sensed differential pressure across the instrument with the equalizing valve open would still have been lower than the spike on the adjoining switch.

D. ASSESSMENT OF SAFETY CONSEQUENCES

The safety significance of this event was minimal. The Primary Containment Isolation System functioned as designed when the high flow isolation signal was received. The positive reactivity due to pressure increase resulting from the closure of the MSIVs is reduced by the initiation of the reactor scram upon start of MSIV closure. A failure of the scram from MSIVs closing would result in a scram from either the Reactor Pressure High scram trip or from the Average Power Range Monitor high flux trip logic. However, the scram and Group 1 isolation do represent a significant challenge to safety related equipment which should be minimized. All PCIS and RPS actions were initiated and completed as designed.

E. CORRECTIVE ACTIONS

Instrument Maintenance Department personnel will receive additional training on proper techniques to be used in valving instruments back into service. The training will emphasize the risks involved when instruments are not properly prepressurized and appropriate precautions which must be taken. The Control System Technicians will be trained by October 1, 1996. The "A" IMs will be trained by February 1, 1997.

A procedure change to LIP-GM-909, "Opening Process Instrument Lines and Valve manipulation," is being implemented to incorporate the information provided during the training sessions described above. The procedure will be revised by December 31, 1996.

A procedure change is being implemented to the Unit 1 and Unit 2 calibration procedures, LIS-MS-102 (202) to reset the isolation trip prior to valving the instrument flow switch back in service. Electrically defeating the trip from the instrument being returned to service is also being evaluated as a part of this procedure revision. Completion of this procedure change is planned prior to the performance of the procedure while at power. LIS-MS-102 and LIS-MS-202, will be revised before August 15, 1996.

F. PREVIOUS OCCURRENCES

LER NUMBER TITLE

373/94-015-00 Unit 1 Primary Containment Isolation and SCRAM Due to Switch Failure

In the referenced LER, a PCIS Group 1 isolation of the main steam hi flow trip logic occurred. At the time of the investigation, the tripping of one of the high flow switches was believed to have spuriously occurred due to a contact resistance problem on the microswitch of the Static 0 Ring (SOR) switch. Foreign material found on the switch contact caused the flow switch to have erratic calibration settings. This was not believed to be the problem in the recent event because the calibration settings of the B2 channel switches were not erratic or abnormal. It is however possible that the cause of the previous event was due to inadequate

prepressurization of the flow switch, and not from the erratic

operation of the switch.

G. COMPONENT FAILURE DATA

Since no component failure occurred, this section is not applicable.

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Commonwealth Edison Company

LaSalle Generating Station

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ComEd

July 24, 1996

United States Nuclear Regulatory Commission

Attention: Document Control Desk

Washington, D.C. 20555

Licensee Event Report #96-007-00, Docket #050-373 is being submitted to

your office in accordance with 10 CFR 50.73(a)(2)(iv).

Respectfully,

D. J. Ray

Station Manager

LaSalle County Station

Enclosure

cc: H. J. Miller, NRC Region III Administrator

M. P. Huber, NRC Senior Resident Inspector - LaSalle

C. H. Mathews, IDNS Resident Inspector - LaSalle

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DCD - Licensing (Hardcopy: Electronic:)

A Unicom Company

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